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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,008	09/04/2003	Kiyofumi Sakaguchi	00862.023220.	4605
5514	7590	10/15/2004	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			DANG, PHUC T	
30 ROCKEFELLER PLAZA			ART UNIT	
NEW YORK, NY 10112			PAPER NUMBER	
			2818	

DATE MAILED: 10/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/654,008	Applicant(s) SAKAGUCHI, KIYOFUMI	
	Examiner PHUC T DANG	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. JAPAN 2002-264188.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>100103, 112034 090304</u> | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Oath/Declaration

1. The oath/declaration filed on September 4, 2003 is acceptable.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The office acknowledges receipt of the following items from the applicant:

Information Disclosure Statement (IDS) filed on October 1, 2003, December 12, 2003 and September 3, 2004.

Specification

4. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor

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and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-19 are rejected under 35 U.S.C. 102 (b) as being anticipated by Matsui et al., hereafter "Matsui" (U.S. Patent No. 6,191,007).

Regarding claims 1, 3, 5 and 19, Matsui discloses a substrate and a substrate manufacturing method comprising:

a step of forming a first substrate (1, Fig. 1A) which has a partial insulating layer (5, Fig. 1C) on a semiconductor region and a single-crystal semiconductor layer (6, Fig. 1D) on a region surrounded by the partial insulating layer (5, Fig. 1D) and on the partial insulating layer (5, Fig. 1D);

a step of implanting ions (Fig. 2A) into the first substrate (1, Fig. 2B) through a surface of the first substrate to form a separation layer (7, Fig. 2A) at a position deeper than a position of the partial insulating layer;

a step of bonding a second substrate (8, Fig. 2B) to the surface of the first substrate (1, Fig. 2B), in which the separation insulator layer (7, Fig. 2B) is formed to form a bonded substrate stack (Fig. 2B); and

a step of splitting the bonded substrate stack (1a, Fig. 2C) at the separation layer (7, Fig. 2C).

Regarding claim 2, Matsui discloses a step of planarizing the surface of the first substrate before bonding the second substrate to the first substrate [Fig. 5B and col. 20, lines 1-4].

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Regarding claim 4, Matsui discloses the semiconductor region comprises a semiconductor layer formed on the substrate by epitaxial growth [col. 127, lines 6-17].

Regarding claim 6, Matsui discloses a step of forming a bonding layer to be bonded to the second substrate across the surface of the first substrate [col. 17, lines 48-63].

Regarding claims 7-14, Matsui discloses a step of forming the bonding layer by planarizing the surface of the materials used in the CVD process [col. 43, lines 30+].

Regarding claims 15-17, Matsui discloses the step of forming the first substrate includes a first growth step of growing a single-crystal semiconductor layer on the region surrounded by the partial insulating layer that has a thickness larger than the partial insulating layer under the condition that no layer grows on the partial insulating layer, and a second growth step of further growing a single-crystal semiconductor layer on the single-crystal semiconductor layer and growing a non-single-crystal semiconductor layer on the partial insulating layer and the first growth step, the single-crystal grown such that the non-single-crystal semiconductor layer to be formed in the subsequent second growth step fits in a region on the partial insulating layer [Figs. 1A-1D and col. 12, lines 11-col. 13, lines 48].

Regarding claim 18, Matsui discloses the ions include hydrogen ions or helium ions [col. 12, lines 49-63].

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuc T. Dang whose telephone number is (571) 272-1776. The examiner can normally be reached on 8:00 am-5:00 pm.

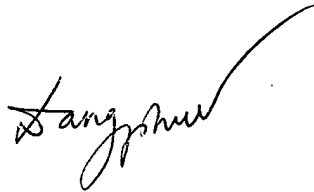
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7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and After Final communications.

8. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Phuc T. Dang

PD

A handwritten signature in black ink, appearing to read 'Phuc T. Dang', with a long, sweeping flourish extending from the end.

Primary Examiner

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